

# Dr. rer. nat. Simon Stephan

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## Personal Information

Date of birth    31 January 1990 in Kassel, Germany.  
Work address    **Georg Elias Müller Institute of Psychology,**  
**University of Göttingen,**  
Goßlerstr. 14, 37073 Göttingen, Germany.

## Research Interests

Focus    Causal reasoning and causal attribution; singular causation judgments; the role of mechanism and temporal information in causal inference; causal strength estimation; explanatory reasoning and causal illusions.  
Methods    Computational cognitive modeling (Bayesian models of causal reasoning), experimental behavioral research, model comparison and quantitative model evaluation.  
Interfaces    Causation and moral judgment; philosophy of causation; cognitive science.

## Education

### University Education

2015 – 2019    **Dr. rer. nat. (summa cum laude)**, University of Göttingen (doctoral program: Behavior and Cognition, BeCog).  
Dissertation: *Answering Causal Queries About Singular Cases – An Evaluation of a New Computational Model*, supervisor: Prof. Dr. Michael R. Waldmann.  
2012 – 2014    **M.Sc. Psychology (with distinction)**, University of Göttingen.  
Thesis: *Lack-Of Control Induced Illusory Pattern Perception as a Result of Diagnostic Self-Deception* (grade: 1.0<sup>1</sup>).  
2009 – 2012    **B.Sc. Psychology (with distinction)**, University of Göttingen.  
Thesis: *Force Dynamics und moralische Intuition – Der Einfluss basaler Kräftekonstellationen auf die Bewertung abstrakter Stimuli* [Force dynamics and moral intuition: The influence of basic force configurations on the evaluation of abstract stimuli] (grade: 1.0).

### Secondary Education

2002 – 2009    **Abitur (university entrance qualification; grade: 1.5)**, Grotefend-Gymnasium Hann. Münden.

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<sup>1</sup>German grading scale from 1.0 (best) to 5.0 (fail).

## Professional Experience

- since 2024     **Postdoctoral Researcher**, Reinhart Koselleck Project (DFG) “Mechanisms, Dispositions, and Statistical Dependencies: A New Theory of Causal Reasoning”, PI: Prof. Dr. Michael R. Waldmann, University of Göttingen (interrupted by parental leave, Aug 2023 – Sep 2024).
- 2019 – 2023     **Postdoctoral Researcher**, Department of Cognitive and Decision Sciences, head: Prof. Dr. Michael R. Waldmann, University of Göttingen.
- 2014 – 2019     **Doctoral Researcher**, Department of Cognitive and Decision Sciences, head: Prof. Dr. Michael R. Waldmann, University of Göttingen.
- 2010 – 2014     **Student Assistant and Tutor (various areas)**, Georg Elias Müller Institute of Psychology, University of Göttingen.

## Awards and Grants

### Awards

- 2024     **APA Division 3 Best Paper Award**, American Psychological Association, for the article *Reasoning about actual causation in reversible and irreversible causal structures* (Journal of Experimental Psychology: Learning, Memory, and Cognition).
- 2017     **Computational Modeling Prize in High-level Cognition**, awarded by the Cognitive Science Society for the best full paper submission involving computational cognitive modeling.

### Grants

- 2017–2021     **DFG Project (€ 212,768.00)**. “Answering causal queries about singular cases”<sup>2</sup>.
- 2016–2018     **Leibniz ScienceCampus Grant (€ 9,552.80)**. “The relationship between causal and moral judgments”.
- 2015–2017     **Leibniz ScienceCampus Grant (€ 7,272.40)**. “The role of intentions in children’s and adult’s causal ascriptions”.

## Publications

An online version of this publication list, with linked PDFs and further materials, is available on my website: <https://simonstephan31.github.io/AcademicWebsite/>.

### Journal Articles (peer-reviewed)

- 1    **S. Stephan** and M. R. Waldmann, “Manipulating prior causal beliefs affects the formation of apparent causal illusions,” *Cognition*, vol. 277, p. 106 684, 2026.  DOI: 10.1016/j.cognition.2026.106684.
- 2    **S. Stephan**, “Reasoning about actual causation in reversible and irreversible causal structures,” *Journal of Experimental Psychology: Learning, Memory, and Cognition*, vol. 51, no. 1, pp. 152–169, 2025.  DOI: 10.1037/xlm0001354.
- 3    **S. Stephan**, “Revisiting the narrow latent scope bias in explanatory reasoning,” *Cognition*, vol. 241, p. 105 630, 2023.

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<sup>2</sup>Planned the project and wrote the grant proposal to fund my own doctoral project. As doctoral students are not formally eligible to apply, Michael R. Waldmann was the official principal investigator.

- 4 **S. Stephan**, N. Engelmann, and M. R. Waldmann, "The perceived dilution of causal strength," *Cognitive Psychology*, vol. 140, p. 101 540, 2023.
- 5 **S. Stephan** and M. R. Waldmann, "The role of mechanism knowledge in singular causation judgments," *Cognition*, vol. 218, p. 104 924, 2022.
- 6 T. Gerstenberg and **S. Stephan**, "A counterfactual simulation model of causation by omission," *Cognition*, vol. 216, p. 104 842, 2021.
- 7 N. Skovgaard-Olsen, **S. Stephan**, and M. R. Waldmann, "Conditionals and the hierarchy of causal queries," *Journal of Experimental Psychology: General*, vol. 150, no. 12, pp. 2472–2505, 2021.
- 8 **S. Stephan**, K. Tentori, S. Pighin, and M. R. Waldmann, "Interpolating causal mechanisms: The paradox of knowing more," *Journal of Experimental Psychology: General*, vol. 150, no. 8, pp. 1500–1527, 2021.
- 9 **S. Stephan**, R. Mayrhofer, and M. R. Waldmann, "Time and singular causation: A computational model," *Cognitive Science*, vol. 44, no. 7, e12871, 2020.
- 10 **S. Stephan** and M. R. Waldmann, "Preemption in singular causation judgments: A computational model," *Topics in Cognitive Science*, vol. 10, no. 1, pp. 242–257, 2018.

## Book Chapters

- 1 **S. Stephan** and M. R. Waldmann, "The interplay between covariation, temporal, and mechanism information in singular causation judgments," in *Advances in Experimental Philosophy of Causation*, A. Wiegmann and P. Willemsen, Eds., London, UK: Bloomsbury Press, 2022, pp. 101–122.

## Conference Papers (peer-reviewed proceedings)

- 1 **S. Stephan**, S. Placì, and M. R. Waldmann, "Recognizing estimation-relevant structural differences in predictive causal reasoning," in *Proceedings of the 48th Annual Conference of the Cognitive Science Society*, G. Boleda, I. Dautriche, M. Maldonado, C. Saldana, and T. Torrent, Eds., Austin, TX: Cognitive Science Society, 2026, pp. 4200–4206.
- 2 **S. Stephan** and M. R. Waldmann, "Manipulating causal priors affects the outcome-density bias," in *Proceedings of the 48th Annual Conference of the Cognitive Science Society*, G. Boleda, I. Dautriche, M. Maldonado, C. Saldana, and T. Torrent, Eds., Austin, TX: Cognitive Science Society, 2026, pp. 4069–4076.
- 3 **S. Stephan**, S. Placì, and M. R. Waldmann, "Evaluating general versus singular causal prevention," in *Proceedings of the 43rd Annual Conference of the Cognitive Science Society*, T. Fitch, C. Lamm, H. Leder, and K. Tessmar, Eds., Austin, TX: Cognitive Science Society, 2021, pp. 1402–1408.
- 4 **S. Stephan** and M. R. Waldmann, "Causal scope and causal strength: The number of potential effects of a cause influences causal strength estimates," in *Proceedings of the 42nd Annual Conference of the Cognitive Science Society*, S. Denison, M. Mack, Y. Xu, and B. C. Armstrong, Eds., Austin, TX: Cognitive Science Society, 2020, pp. 3426–3432.
- 5 **S. Stephan** and M. R. Waldmann, "On causal claims, contingencies, and inference: How causal terminology affects what we think about the strength of causal links," in *Proceedings of the 42nd Annual Conference of the Cognitive Science Society*, S. Denison, M. Mack, Y. Xu, and B. C. Armstrong, Eds., Austin, TX: Cognitive Science Society, 2020, pp. 3419–3425.
- 6 **S. Stephan**, R. Mayrhofer, and M. R. Waldmann, "Assessing singular causation: The role of causal latencies," in *Proceedings of the 40th Annual Conference of the Cognitive Science Society*, T. T. Rogers, M. Rau, X. Zhu, and C. W. Kalish, Eds., Austin, TX: Cognitive Science Society, 2018, pp. 1080–1085.

- 7 **S. Stephan** and M. R. Waldmann, "Preemption in singular causation judgments: A computational model," in *Proceedings of the 39th Annual Conference of the Cognitive Science Society*, G. Gunzelmann, A. Howes, T. Tenbrink, and E. Davelaar, Eds., Austin, TX: Cognitive Science Society, 2017, pp. 1126–1131.
- 8 **S. Stephan**, P. Willemsen, and T. Gerstenberg, "Marbles in inaction: Counterfactual simulation and causation by omission," in *Proceedings of the 39th Annual Conference of the Cognitive Science Society*, G. Gunzelmann, A. Howes, T. Tenbrink, and E. Davelaar, Eds., Austin, TX: Cognitive Science Society, 2017, pp. 1132–1137.
- 9 J. Nagel and **S. Stephan**, "Explanations in causal chains: Selecting distal causes requires exportable mechanisms," in *Proceedings of the 38th Annual Conference of the Cognitive Science Society*, A. Papafragou, D. Grodner, D. Mirman, and J. C. Trueswell, Eds., Austin, TX: Cognitive Science Society, 2016, pp. 806–812.
- 10 **S. Stephan** and M. R. Waldmann, "Answering causal queries about singular cases," in *Proceedings of the 38th Annual Conference of the Cognitive Science Society*, A. Papafragou, D. Grodner, D. Mirman, and J. C. Trueswell, Eds., Austin, TX: Cognitive Science Society, 2016, pp. 2795–2801.
- 11 J. Nagel and **S. Stephan**, "Mediators or alternative explanations: Transitivity in human-mediated causal chains," in *Proceedings of the 37th Annual Conference of the Cognitive Science Society*, D. C. Noelle, R. Dale, A. S. Warlaumont, *et al.*, Eds., Austin, TX: Cognitive Science Society, 2015, pp. 1691–1696.

## In Preparation / Preprints

- S. Placi, **S. Stephan**, M. R. Waldmann, & G. Vallortigara (in preparation). When Newton beats Euclid: Intuitive physics underlies sensitivity to geometry. <https://doi.org/10.31234/osf.io/78syx>
- J. Nagel, **S. Stephan**, & M. R. Waldmann (under review). Understanding causal devices: Nomological machines guide causal understanding.

## Conference Contributions

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|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| July 2026      |  <b>48th Annual Meeting of the Cognitive Science Society</b> , Rio de Janeiro, Brazil [virtual]<br><b>Poster:</b> "Manipulating Causal Priors Affects the Outcome-Density Bias".                                                                                                                                                                   |
|                |  <b>48th Annual Meeting of the Cognitive Science Society</b> , Rio de Janeiro, Brazil [virtual]<br><b>Poster:</b> "Recognizing Estimation-Relevant Structural Differences in Predictive Causal Reasoning".                                                                                                                                         |
| July 2024      |  <b>2nd Meeting of the Society for Philosophy of Causation</b> , Göttingen, Germany<br><b>Talk:</b> "Reasoning about Actual Causation in Reversible and Irreversible Causal Structures".                                                                                                                                                           |
| July 2022      |  <b>44th Annual Meeting of the Cognitive Science Society</b> , Toronto, Canada [virtual]<br><b>Poster:</b> "The Perceived Dilution of Causal Strength".<br> <b>SPP &amp; ESPP</b> , Milan, Italy<br><b>Poster:</b> "The Perceived Dilution of Causal Strength". |
| July 2021      |  <b>43rd Annual Meeting of the Cognitive Science Society</b> , Vienna, Austria [virtual]<br><b>Poster:</b> "Evaluating General vs. Singular Causal Prevention".                                                                                                                                                                                    |
| September 2019 |  <b>27th Conference of the European Society for Philosophy and Psychology</b> , Athens, Greece<br><b>Talk:</b> "The Role of Effect and Sample Size in Causal Induction".                                                                                                                                                                           |

## Conference Contributions (continued)

- June 2019  **European Conference for Cognitive Science**, Bochum, Germany  
**Poster:** "The Role of Effect and Sample Size in Causal Induction".
- June 2019  **Summer Institute on Bounded Rationality**, Berlin, Germany  
**Flash Talk & Poster:** "Answering Causal Queries about Singular Cases: An Evaluation of a New Computational Model".
- July 2018  **40th Annual Meeting of the Cognitive Science Society**, Madison, WI, USA  
**Talk:** "Assessing Singular Causation: The Role of Causal Latencies".
- May 2018  **International Meeting of the Psychonomic Society**, Amsterdam, Netherlands  
**Poster:** "Answering Singular Causation Queries: The Role of Temporal and Mechanistic Information".
- February 2018  **7th Annual Meeting of the DFG Priority Program "New Frameworks of Rationality"**, Etelsen, Germany  
**Project presentation:** "Interpolating Causal Mechanisms: The Paradox of Knowing More".
- August 2017  **25th Conference of the European Society for Philosophy and Psychology**, London, UK  
**Talk:** "Answering Causal Queries About Singular Cases".
- July 2017  **39th Annual Meeting of the Cognitive Science Society**, London, UK  
**Talk:** "Preemption in singular causation judgments: A computational model".
- July 2017  **39th Annual Meeting of the Cognitive Science Society**, London, UK  
**Talk:** "Marbles in inaction: Counterfactual simulation and causation by omission".
- March 2017  **6th Annual Meeting of the DFG Priority Program "New Frameworks of Rationality"**, London, UK  
**Talk:** "Answering Causal Queries About Singular Cases".
- August 2016  **38th Annual Meeting of the Cognitive Science Society**, Philadelphia, PA, USA  
**Talk:** "Answering Causal Queries About Singular Cases".
- August 2016  **38th Annual Meeting of the Cognitive Science Society**, Philadelphia, PA, USA  
**Poster:** "Explanations in Causal Chains: Selecting Distal Causes Requires Exportable Mechanisms".
- July 2015  **37th Annual Meeting of the Cognitive Science Society**, Pasadena, CA, USA  
**Poster:** "Mediators or Alternative Explanations: Transitivity in Human-Mediated Causal Chains".

## Teaching and Supervision

### Courses

- 2014 – 2022  **Quantitative Methods I** (B.Sc. Psychology). Foundations of experimental design and hypothesis testing, data visualization, descriptive and inferential statistics, power analysis. Hands-on exercises in MS Excel.  
*Taught:* winter terms 2014/15, 2015/16, 2016/17, 2018/19, 2020/21, 2021/22.
- 2015 – 2022  **Quantitative Methods II** (B.Sc. Psychology). The general linear model and its applications (multiple regression and its assumptions, ANOVA, contrast analysis, logistic regression, multilevel models). Hands-on exercises in R and RStudio (Markdown).  
*Taught:* summer terms 2015, 2016, 2017, 2019, 2020, 2021, 2022.

## Teaching and Supervision (continued)

- 2022/23     **Foundations of Learning and Behavior** (B.Sc. Psychology). Principles and applications of classical and operant conditioning; seminar within the bachelor's module "General Psychology II".

### Tutorials

- Winter 2011/12     **Experimental Practicum (ExPra)** (B.Sc. Psychology). Supervised small groups in developing their own research question, implementing it experimentally, and writing up the results as a report following the standards of a research article.

### Online Teaching Materials

- since 2020     **Companion website for Quantitative Methods I and II** (B.Sc. Psychology). Independently designed and built course website presenting the theoretical content of each session and providing all course materials: lecture videos, tutorials and summaries, as well as practice datasets and model solutions.  
<https://quantigoettingen.github.io/quantigoettingen/index.html>

### Supervised Theses

- Summer 2026     **Does mechanism knowledge help to overcome alternative cause neglect? An experimental investigation of the influence of mechanistically transparent causal systems.** B.Sc. thesis, A. Herrendorf.
-  **Does manipulating causal structure priors modulate the influence of predictive probabilities on diagnostic reasoning?** B.Sc. thesis, K. L. Schwab.
- Summer 2025     **Causal strength assessment in continuous time.** M.Sc. thesis, L. Reichardt.
- Summer 2024     **How does causal stability influence action preferences on the individual and group level?** M.Sc. thesis, A. Sykulla.
- Summer 2023     **The narrow latent scope bias in explanatory reasoning – an overrated phenomenon?** B.Sc. thesis, J. Larysch.
- Summer 2022     **The role of personal risk and ambiguity affinity when choosing between causally stable vs. unstable interventions.** B.Sc. thesis, A. Bierbach.
- Summer 2021     **Understanding maintaining causes and processes in simple dynamic feedback-loop structures.** M.Sc. thesis, J. Schwerdt. (Co-supervised with York Hagmayer.)
-  **Maintaining factors in causal feedback loop structures.** M.Sc. thesis, M. Bensberg. (Co-supervised with York Hagmayer.)
-  **Do causal strength and mechanism knowledge influence the degree of causal Markov violations in common cause structures?** B.Sc. thesis, J. T. Ferchlandt.
-  **Causal reasoning and the role of mechanisms: Does the quality of probabilistic inferences improve in the face of mechanistically transparent causal systems?** B.Sc. thesis, A. Kühne.
-  **Causal strength intuitions based on causal scope under causal capacity manipulations.** B.Sc. thesis, P. Steinberg.
-  **The influence of effect valence and causal process type on the perceived dilution of causal strength.** B.Sc. thesis, G. Döscher.
- Summer 2020     **Triggering and maintaining causes.** M.Sc. thesis, E. Preuß. (Co-supervised with York Hagmayer.)

## Teaching and Supervision (continued)

|                |                                                                                                                                                   |
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|                | ■ <b>The weakening effect in the interpolation of causal mechanisms.</b> B.Sc. thesis, N. Walter.                                                 |
| Winter 2018/19 | ■ <b>Predictive judgments in interpolated versus lengthened causal chains.</b> B.Sc. thesis, M. Akil.                                             |
| Summer 2018    | ■ <b>Which category level do reasoners consider when they make general versus singular causation judgments?</b> B.Sc. thesis, J. Reddehase.       |
|                | ■ <b>The influence of observed statistical normality on the evaluation of singular causal strength.</b> B.Sc. thesis, J. Blümer.                  |
| Summer 2017    | ■ <b>Was this causal or coincidental? The influence of general causation knowledge on singular causation judgments.</b> B.Sc. thesis, J. Wasmuth. |
|                | ■ <b>Singular causation judgments – the role of preemption and generic causal uncertainty.</b> B.Sc. thesis, K. Serwazi.                          |
| Winter 2016/17 | ■ <b>Double prevention in causal reasoning.</b> B.Sc. thesis, J. Baum.                                                                            |

## Peer Review

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| Journals    | ■ Cognition; Cognitive Psychology; Cognitive Science; Computational Brain & Behavior; Journal of Cognitive Psychology; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Learning, Memory, and Cognition; Journal of Experimental Social Psychology; Memory & Cognition; Open Mind: Discoveries in Cognitive Science; Philosophical Psychology; PLoS One; Psychological Review. |
| Conferences | ■ Proceedings of the Annual Meeting of the Cognitive Science Society.                                                                                                                                                                                                                                                                                                                                          |
| Profile     | ■ <a href="https://www.webofscience.com/wos/author/record/AAA-7836-2022">https://www.webofscience.com/wos/author/record/AAA-7836-2022</a>                                                                                                                                                                                                                                                                      |

## Academic Service

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|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 – 2025 | ■ <b>Committee member</b> , search committee for the W2 tenure-track (W3) professorship in <i>Clinical Psychology</i> , University of Göttingen. |
| 2016 – 2017 | ■ <b>Doctoral student representative</b> , doctoral program <i>Behavior &amp; Cognition</i> (BeCog), University of Göttingen.                    |

## Skills

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|-------------|-------------------------------------------------------------------------------------------------------------------------|
| Languages   | ■ German (native); English (fluent, spoken and written); French (good communication skills); Italian (basic knowledge). |
| Programming | ■ R, L <sup>A</sup> T <sub>E</sub> X, JavaScript, ActionScript                                                          |
| Software    | ■ RStudio, Quarto, SPSS, STATISTICA, MS Office, Overleaf, Photoshop, Illustrator, Inkscape, Animate.                    |
| Web         | ■ HTML, CSS, JavaScript.                                                                                                |
| Other       | ■ Scientific research and publishing, teaching, supervision of bachelor's and master's theses.                          |